

Mark L. Shurtleff USB # 4666  
UTAH ATTORNEY GENERAL  
Raymond A. Hintze USB #1501  
Chief Civil Deputy Attorney General  
J. Mark Ward USB # 4436  
Assistant Attorney General  
236 State Capitol Building  
Salt Lake City, Utah 84114  
Telephone 801-538-1191  
Facsimile 801-538-1121

Thomas R. Lee USB # 5991 JUN 11 1991 5: 32  
1395 E. Canberra Dr.  
Lindon, Utah 84042 U.S. DISTRICT COURT  
Telephone 801-378-9024 DISTRICT OF UTAH  
Facsimile 801-378-5893

Gene C. Schaerr  
Michael S. Lee USB #8108  
Jay T. Jorgensen USB #8216  
SIDLEY AUSTIN BROWN & WOOD  
1722 Eye St., NW  
Washington, DC 20006  
Telephone 202-736-8000  
Facsimile 202-736-8711

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF UTAH, CENTRAL DIVISION

STATE OF UTAH, *et al.*,

Plaintiffs,  
v.

DONALD L. EVANS, *et al.*,

Defendants.

**MEMORANDUM IN SUPPORT OF  
MOTION FOR SUMMARY  
JUDGMENT**

Case No. 2:01-CV-292G

Plaintiffs respectfully submit this Memorandum in Support of their Motion for Summary Judgment pursuant to Rule 56 of the Federal Rules of Civil Procedure.

21

## TABLE OF CONTENTS

INTRODUCTION AND SUMMARY .....	2
STATEMENT OF UNDISPUTED FACTS .....	4
The Census Bureau’s Methods of Actual Enumeration.....	6
The Census Bureau’s Use of Statistical Imputation .....	9
Imputation as a Form of Statistical Sampling.....	11
Imputation as a Potential Means of Manipulating the Apportionment Count.....	18
Effect of Imputation on Apportionment .....	19
ARGUMENT .....	20
I.    IMPUTATION VIOLATES THE CENSUS ACT .....	21
A.    The Census Act, as Interpreted in <i>House of Representatives</i> , Prohibits the Use of Statistical Sampling in the Apportionment Count .....	21
B.    Statistical Imputation Is a Form of Statistical Sampling Prohibited by the Census Act .....	23
1.    Imputation cannot be justified on the basis of its narrower scope .....	25
2.    Non-random sampling is just as unlawful as random sampling .....	26
3.    The Census Bureau cannot avoid the statutory prohibition by pointing to four prior uses of imputation in the apportionment court .....	30
II.   STATISTICAL IMPUTATION VIOLATES THE CENSUS CLAUSE .....	35
A.    An “Actual Enumeration” is an Actual Count, Not an Estimate .....	35
B.    The History of the Census Clause Confirms the Plain Language.....	37
1.    The Framers preferred a precise rule over an indefinite standard .....	39

2	The Framers understood and discussed the difference between an “estimate” and a physical count of the actual “number” of persons in a population .....	41
III.	DEFENDANTS’ USE OF STATISTICAL IMPUTATION VIOLATES THE APA.....	46
	CONCLUSION.....	48

## **INTRODUCTION AND SUMMARY**

In this action, the State of Utah, many of its elected officials, and others challenge the Census Bureau's use of a sampling technique known as "imputation" in the portion of the 2000 census used to apportion seats in the United States House of Representatives. Imputation is a method of statistical sampling in which the Census Bureau estimates what might appropriately be termed "phantom residents"—that is, individuals who have never been specifically identified and are not, in fact, known to exist. The Bureau's use of that technique in the 2000 census deprived Utah of a fourth seat in the House of Representatives.

To be sure, the Bureau had used imputation in several previous censuses, but only to estimate the number of persons living in housing units that census enumerators had personally verified as existing. In the 2000 census, the Census Bureau took the next step down this slippery slope: it used imputation to estimate the number of persons living in housing units that had not been verified to exist, even after several attempts at verification. In short, the Bureau not only included phantom residents of known housing units in the apportionment count—as it had done before—it also included phantom residents of phantom housing units!

Under the undisputed facts, the Bureau's use of imputation in the 2000 census was unlawful for three separate reasons. First, it violated the Census Act, 13 U.S.C. §§ 1 *et seq.*, as recently interpreted by the Supreme Court in *Department of Commerce v. United States House of Representatives*, 525 U.S. 316 (1999). In the Census Act, Congress prohibited the Census Bureau from using "the statistical method known as 'sampling'" in enumerating the apportionment population. 13 U.S.C. § 195. In *House of Representatives*, the Supreme Court held that the Census Act "directly prohibits the use of sampling in the determination of population for purposes of apportionment." *House of Representatives*, 525 U.S. at 338; *see also id.* at 340 (holding that "there is only one plausible reading of the amended § 195: It prohibits the use of sampling in calculating the population for purposes of apportionment").

As shown in detail below, imputation is a form of statistical sampling, and therefore cannot be used in the apportionment count. Indeed, the Census Bureau itself has characterized imputation as a method of “sampling.” See United States Department of Commerce, Report to Congress—The Plan for Census 2000 (“Census 2000 Report”) at 23 (AR at C00155). And one of the dissenting opinions in *House of Representatives* acknowledged that imputation is a “sampling technique[,]” *House of Representatives*, 525 U.S. at 352 (Breyer, J., dissenting), comparable to the sampling invalidated by the majority’s decision there.

Second, imputation is unlawful under the Census Clause, U.S. Const. art. 1 § 2, cl. 3, which requires an “actual Enumeration” of the “whole number of persons” in each state. U.S. Const. art. I, § 2, cl. 3 & amend. XIV, § 2. As shown below, a wealth of historical information uncovered since the *House of Representatives* decision confirms the conclusion reached in the concurrence authored by Justice Scalia and joined by three other Justices: that the Census Clause, as understood by the Framers, “requires an actual counting, and not just an estimation of number.” 525 U.S. at 346–47. Imputation involves an “estimation”—in this case of housing units as well as of the individuals residing in those units—rather than an “actual counting”, and is therefore patently unlawful under the Census Clause.

Imputation, moreover, raises the very concerns about “partisan manipulation” that led the Founders to adopt this requirement. See *House of Representatives*, 525 U.S. at 349. As the record presented here shows, imputation, like the other sampling technique at issue in *House of Representatives*, carries the potential for manipulation by Congress, the States, and the Bureau itself.

Finally, the Bureau’s use of imputation in the 2000 census violated the Administrative Procedure Act. The federal courts have repeatedly held that the central purpose of the census is to apportion congressional representation among the states based on an accurate determination of the size and distribution of the national population. The Bureau’s decision to include phantom

individuals—including phantom residents of phantom housing units—in the apportionment count is manifestly arbitrary because the administrative record on which the Bureau relied contains no studies or analysis, or indeed any substantial evidence sufficient to demonstrate that imputation furthers this constitutional purpose. Without such analytic or factual support, the Bureau could not know whether the imputation procedures used in the 2000 census would accurately identify real people in appropriate numbers and proportions across the states. And without any analysis of the statutory and constitutional issues addressed in the *House of Representatives* decision—issues on which the Administrative Record<sup>1</sup> is deafeningly silent—the Bureau could not know whether those procedures satisfied applicable legal requirements. Accordingly, the Bureau's use of imputation in the apportionment count must be vacated as arbitrary and capricious.

For all these reasons, this Court should issue a declaratory order invalidating the Bureau's use of imputation in the 2000 census and an injunction requiring the Bureau to recalculate the apportionment count exclusive of individuals added through the imputation process.<sup>2</sup>

### **STATEMENT OF UNDISPUTED FACTS**

1. The federal decennial census is conducted pursuant to the requirement imposed by the U.S. Constitution in Article I, Section 2, Clause 3 and the Fourteenth Amendment that

---

<sup>1</sup> Defendants compiled the Administrative Record, which contains documents pertaining to Defendants' use of statistical imputation in the 2000 census, in response to Plaintiffs' discovery requests. Plaintiffs filed a copy of the Administrative Record—which consists of 1187 pages, numbered C00001 through C01187—contemporaneously with this Memorandum.

<sup>2</sup> Although this case challenges only Defendants' unlawful use of statistical imputation, Plaintiffs have also challenged another aspect of the 2000 apportionment count in a related suit. In that case, Plaintiffs seek to overturn Defendants' decision to enumerate only a portion of the Americans who were temporarily living abroad on census day. On April 17, 2001 a three-judge panel granted summary judgment for Defendants on this claim. *See State of Utah v. Evans*, No. 2: 01CV0023B (D. Utah, April 17, 2001). Plaintiffs are appealing this ruling to the Supreme

Congress (or such entity as Congress may designate) conduct an “actual Enumeration” of “the whole number of persons in each state” as the basis for apportionment of seats in the U.S. House of Representatives. *See* U.S. Const., art. I, § 2, cl. 3 & amend. XIV, § 2. The portion of the decennial census that is used to apportion congressional representation is often referred to as “the apportionment count.”

2. In the Census Act, 13 U.S.C. §§ 1 *et seq.*, Congress delegated responsibility for conducting the census to the Secretary of Commerce. *See* 13 U.S.C. § 4. In turn, the Secretary of Commerce delegated the responsibility to the Director of the Census Bureau. *See* 13 U.S.C. § 141. Under the Census Act, the Secretary has the responsibility to conduct “a decennial census” of the “population” of each of the United States. 13 U.S.C. § 141(a).

3. “From the very first census, the census of 1790,” Congress required enumerators to “swear an oath to make ‘a just and perfect enumeration’ of every person within the division to which they were assigned.” *House of Representatives*, 525 U.S. at 335 (quoting Act of Mar. 1, 1790, § 1, 1 Stat. 101). In 1810, Congress clarified that “‘the said enumeration shall be made by an actual inquiry at every dwelling-house, or of the head of every family within each district, and not otherwise.’” *Id.* (quoting Act of Mar. 26, 1810, § 1, 1 Stat. 101). This requirement—that enumerators visit each home in person—“appeared in statutes governing the next 14 censuses.” *Id.* Enacted in 1954, the current Census Act initially contained substantially similar language requiring enumerators to “‘visit personally each dwelling house in his subdivision’ in order to obtain ‘every item of information and all particulars required for any census or survey’

---

Court. Because of the timing of such an appeal, it is likely that any ruling in the present case will be consolidated with Plaintiffs’ other claim for purposes of Supreme Court review.

conducted in connection with the census.” *Id.* at 336 (quoting Act of Aug. 31, 1954, § 25(c), 68 Stat. 1012, 1015).

4. In 1964, Congress repealed the requirement that enumerators personally visit each housing unit. *See id.* at 337 (citing Act of Aug. 31, 1964, 78 Stat. 737). Although in the most recent four censuses personal visits have been supplemented by census forms delivered and returned by mail, the forms continue the longstanding practice of requesting up-to-date information directly from each housing unit. *See id.*, 525 U.S. at 337.

#### The Census Bureau’s Methods of Actual Enumeration

5. To conduct the apportionment count in the 2000 census, the Census Bureau first compiled a “Master Address File”—*i.e.*, a comprehensive list of dwelling places within the United States—with the assistance of the United States Postal Service, other federal agencies, tribal, state, and local governments, community organizations, and canvasses of selected areas where they expected that other sources have not yielded highly accurate address lists. *See* Declaration of Lara J. Wolfson, Ph.D. (“Wolfson Decl.”) (attached as Exhibit A) ¶ 17; *see also* Administrative Record (“AR”) at C00034-36.

6. Next, the Census Bureau used three different procedures in attempting to contact every housing unit on the Master Address File. *See* Wolfson Decl. ¶ 18; *see also* AR at C00206-07.

7. Three traditional methods of enumeration are utilized in attempting to contact every household on the Master Address File. First, the majority of households (more than 80%) who have city-style addresses (*i.e.*, addresses that identify the precise location of the housing unit) are contacted through forms mailed to them through the United States Postal Service, which



they are to fill out and mail back to the Census Bureau. This is known as the “mailout/mailback” procedure. *See* Wolfson Decl. ¶ 19; *see also* AR at C00205-07, C00267.

8. Second, for areas where addresses used for mail delivery are predominantly non-city-style (*i.e.*, rural postal route addresses, which do not identify the precise location of the housing unit), enumerators used a counting mechanism known as the “update/leave” procedure. In performing that procedure, an enumerator leaves a census form at a housing unit for the head of household to complete and mail back, and updates the entry for that housing unit in the Master Address File. *See* Wolfson Decl. ¶ 20; *see also* AR at C00206, C00267.

9. Finally, for housing units in remote and sparsely populated areas, the Census Bureau employed the “list/enumerate” procedure. Under this procedure, enumerators contacted the housing units (either in person or by telephone), completed census questionnaires following interviews with one or more occupants of each unit, and recorded the addresses on the Master Address File. *See* Wolfson Decl. ¶ 21; *see also* AR at C00206, C00267.

10. Some individuals not enumerated through one of the procedures described above were able to obtain census forms from the local post office or by contacting a hotline through the “Be Counted” program. Targeted efforts to improve coverage were implemented in difficult-to-enumerate areas. Separate procedures were used by the Census Bureau to enumerate “special populations,” such as military bases, group living situations, persons without a usual residence, etc. *See* Wolfson Decl. ¶ 22; *see also* AR at C00269-73.

11. For all housing units listed on the Master Address File that were not enumerated through the procedures detailed in paragraphs 7–10, the Census Bureau conducted a “Non-Response Follow-Up,” (“NRFU”) in which enumerators attempted to contact persons living in

those housing units (either by telephone or through a personal visit) and complete missing census questionnaires following an interview with a member of the household or with a “proxy” such as a neighbor. During NRFU, several attempts were made to contact any housing units for which a completed census response had not been obtained, or for households that had been identified as vacant or non-existent. *See* Wolfson Decl. ¶ 23; *see also* AR at C00278. If an enumerator was unable to contact any of the occupants of a particular housing unit after multiple visits or telephone calls, he or she would attempt to complete the census questionnaire for that housing unit using information obtained from a “proxy” or from some other “last resort” method (*e.g.*, conversations with neighbors, personal observations, etc.). *See* Wolfson Decl. ¶ 24.

12. During a second follow-up procedure known as “Coverage Improvement Follow-Up,” (“CIFU”) the Bureau made further attempts to verify information for housing units that were identified as “vacant” or “delete” (*i.e.*, of uncertain existence) during Non-Response Follow-Up, or to obtain population data for housing units still lacking population counts. In addition, housing units that were added to the Master Address File during census operations, but which were not followed up on during NRFU, were also contacted through CIFU. *See* Wolfson Decl. ¶ 25; *see also* AR at C00278-79.

13. Thus, the Census Bureau made multiple attempts to obtain census information from non-responding housing units in the 2000 census. *See* Wolfson Decl. ¶ 26; *see also* AR at C00278-79. The Bureau then used imputation to estimate the occupancy of all housing units that, at the conclusion of the follow-up procedures described above, had been designated as having “unknown population count status” (*i.e.*, units known to be occupied, but for which the Bureau had not assigned a population count); “unknown occupied/vacant status” (*i.e.*, units

known to exist, but which the Bureau had not established as occupied); and “unknown occupied/vacant/delete status” (*i.e.*, units whose existence the Bureau had not established). *See* Wolfson Decl. ¶ 26; DOJ Disc. Resp. at 15–22.

14. In the 2000 census, the Bureau did not classify non-responding housing units as vacant or “delete” (*i.e.*, non-existent) unless or until it received information from two independent sources that the unit in question was vacant or did not exist. *See* Wolfson Decl. ¶ 27; AR at C01019; C00207. As a result of this “double-delete” policy, in many instances the Bureau likely “counted” persons living in units whose occupancy or existence was not only unverified, but affirmatively doubtful.<sup>3</sup> *See* Wolfson Decl. at ¶ 27.

#### The Census Bureau’s Use of Statistical Imputation

15. From the first census of 1790 through the census of 1950, the apportionment count was derived exclusively from actual data gathered by census enumerators, and did not include any estimates generated by statistical methods. *See* DOJ Disc. Resp. at 11; AR at C00155. Although a form of statistical imputation was employed in the 1940 and 1950 censuses, it was used only to estimate *characteristics* of the population (such as age), and not to estimate the actual population *count* for apportionment purposes. *See* DOJ Disc. Resp. at 10–11; AR at C00155; Wolfson Decl. ¶ 28.

16. The Census Bureau first used statistical imputation to supplement the apportionment count in the 1960 census, and has used some form of imputation for that purpose in every decennial census since then. *See* DOJ Disc. Resp. at 11–12; Wolfson Decl. ¶ 32.

---

<sup>3</sup> For example, the Bureau may have received information indicating that many of the non-enumerated housing units did not actually exist. But unless it received information to that effect

17. The method of imputation used by the Bureau, however, has changed over the years. In compiling the apportionment counts in the 1960, 1970, 1980, and 1990 censuses, the Bureau imputed several hundred thousand persons presumed to be living in housing units that the Bureau had found to exist, but for which no population count was reported.<sup>4</sup> See Wolfson Decl. ¶¶ 31–44; DOJ Disc. Resp. at 13–16; *see also* AR at C00678, C00548, C00682.

---

from two independent sources, the Bureau used imputation to estimate the occupancy of those units. See Wolfson Decl. ¶ 27.

<sup>4</sup> In their response to Plaintiffs' Interrogatory No. 3, Defendants claim that "[f]or the censuses of 1960, 1970, and 1980, available records do not indicate for certain whether persons were added to the apportionment count for housing units that the Census Bureau had not classified as to whether it was in existence." DOJ Disc. Resp. at 21. A careful reading of Defendants' own documents, however, indicates that the Bureau used imputation to estimate the occupancy of (1) "housing units with unknown (occupied or vacant) status" and (2) "units known to be occupied but missing population counts." See Griffin 1992 at 2 (AR at C00735). In fact, in 1982, Barbara Bailar, Associate Director for the Census Bureau's Statistical Standards and Methodology division, explained in a sworn affidavit that the Bureau had established "the physical existence of [all] housing units" that were subjected to imputation in the 1980 census. See Affidavit of Barbara A. Bailar in *Orr v. Baldrige* (S.D. Ind. No. IP-81-604C) at 6 ("Bailar Affidavit") (AR at C00568); Wolfson Decl. ¶¶ 42–44.

Also, while Defendants claim that "[r]ecords for the 1990 census indicate that, in 1990, imputation was used to add to the apportionment count persons who were living in housing units" whose existence had not been verified by the Census Bureau, their own documents suggest otherwise. For example, in a memorandum dated March 8, 1991, Charles D. Jones, Associate Director of the 1990 Decennial Census, explained that in conducting the 1990 census, the Bureau imputed only (a) housing "[u]nits known to be occupied, but for which no population count was collected," and (b) "[u]nits known to be existing housing units, but for which we did not know the occupancy status . . . or number of persons." AR at C00682; Wolfson Decl. ¶¶ 42–44.

In any event, it is clear that the use of imputation in the 1990 census had absolutely no impact on apportionment, and therefore, that any supposed imputation of housing units not known to exist had no practical consequence. It is undisputed that in the 1990 census, fewer than 1,000 people were imputed into housing units with *any* form of "unknown status." See Wolfson Decl. ¶¶ 42–44. In fact, only 883 of the 53,590 persons added to the apportionment population through imputation in 1990 were from "unclassified (vacant or occupied)" units; the remainder were for housing units that were known to be occupied, but which were missing population counts. Thus, even if Defendants could establish that they subjected *any* housing units of

18. In the 2000 census, the Bureau again imputed persons living in housing units known to exist, but for which no population count had been reported, but the Bureau also imputed the presumed occupants of housing units whose existence it had not been able to verify.<sup>5</sup> See DOJ Disc. Resp. at 20–21; AR at C00778; see also AR at C01138-39 (explaining that in the 2000 census, the Bureau used imputation even where it did not “know whether the census listing actually represents a housing unit”).

19. Also, while the imputation methodology used in 1960 was similar to that used in 1980, it differed significantly from the methodology used in 1970. Although Defendants apparently take the legal position that imputation does not amount to statistical sampling, Defendants concede that some of the statistical procedures used in 1970 can accurately be described as forms of statistical sampling.<sup>6</sup> See DOJ Disc. Resp. at 14.

20. In 1980, the Bureau’s use of imputation shifted one seat in the House of Representatives from Indiana to Florida. See AR at C00655. Other than 1980, however, Defendants have not identified any other use of imputation that had any actual impact on apportionment. See Wolfson Decl. ¶ 39.

---

unknown existence to imputation in the 1990 census, that use of imputation was purely an academic exercise that had no practical effect. See Wolfson Decl. ¶ 44 & n.7. By contrast, of the nearly 1.2 million “persons” imputed in the 2000 census, more than 400,000 were attributed to housing units of unknown existence. See DOJ Disc. Resp. at Table 1; *id.* at Table 3.

<sup>6</sup> In 1970, the Census Bureau used two random, representative sampling procedures (known as the National Vacancy Check and the Post-Enumeration Post-Office Check) to estimate the occupancy of housing units that had been classified as vacant. Those procedures were similar to those at issue in *House of Representatives*, under which the verified population counts of randomly sampled non-responding housing units would have been used to estimate the occupancy of other non-responding units that were not sampled. See DOJ Disc. Resp. at 14.

Imputation as a Form of Statistical Sampling

21. The statistical imputation methodology employed in the 2000 census is substantively indistinguishable from the sampling methodology at issue in *House of Representatives*. See Declaration of Donald B. Rubin (attached as Exhibit B) (“Rubin Decl.”) ¶¶ 11, 20–23; Wolfson Decl. ¶¶ 45–52. The Census Bureau developed both procedures to estimate the portion of the population that was not counted by traditional methods of actual enumeration. See Rubin Decl. ¶¶ 21–23; Wolfson Decl. ¶ 47.

22. The Census Bureau has acknowledged in its own documents that imputation is a form of statistical sampling and that estimates derived by use of imputation cannot be considered the product of an actual enumeration. In its report to Congress on its plan for the 2000 census, the Bureau expressly recognized the straightforward distinction between “traditional methods of physical enumeration” and methods of “statistical sampling” that are designed “to account for those who cannot otherwise be accounted for.” United States Department of Commerce, Report to Congress—The Plan for Census 2000 (“Census 2000 Report”) at x (AR at C00132). The Bureau has also acknowledged that traditional methods of “actual enumeration” have long been viewed as “the foundation of the census.” *Id.* This traditional foundation includes the “questionnaire mail-out and mail-back campaign” and follow-up visits to unresponsive housing units. *Id.*

23. Throughout the Census 2000 Report, the Bureau repeatedly described imputation as a form of statistical estimation or sampling. See Census 2000 Report at 23 (AR at C00155) (explaining that “‘sampling’ occurs whenever the information on a portion of a population is used to infer information on the population as a whole,” and discussing imputation as one

example of the Bureau's "[r]eliance on [s]ampling in [p]revious [c]ensuses"); *see also id.* at 42 (AR at C00174) (asserting that "[e]rrors can . . . be introduced when missing data items are created from statistical modeling procedures (*i.e.*, imputation)."); *id.* at 56 (AR at C00188) ("When information is missing or inconsistent, the Census Bureau uses a method called imputation to assign values. Imputation relies on the statistical principle of 'homogeneity,' or the tendency of households within a small geographic area to be similar in most characteristics. . . . In past censuses, when the occupancy status or the number of residents was not known for a housing unit, this information was imputed."); *id.* at 23 (AR at C00155) (referring to imputation, and explaining that "Census 2000 [would] not be the first time that the Census Bureau has used statistical methods to correct for problems in physical enumeration and to provide a more accurate final result.").

24. The Census Bureau has acknowledged that "'sampling' occurs whenever the information on a portion of a population is used to infer information" about unobserved portions of the same population. Census 2000 Report at 23 (AR at C00155); *see also* Testimony of Census Bureau Director Kenneth Prewitt, U.S. House of Representatives, Committee on Government Reform, Subcommittee on the Census (June 22, 2000) (AR at C00857) ("[I]n the apportionment number there will be a certain number of Census records which are put there through an imputed process. Those are not people with names. They are not people who filled out a form. They are people who our statistical processes lead us to believe by putting that Census record in there we have given the country a more accurate number.").

25. Thus, in the context of the decennial census, statistical sampling is a two-step process whereby the Census Bureau (1) gathers information from various components or

“samples” of the population, and then (2) “imputes” that information to other non-sampled components of the same population in an attempt “to account for those who cannot otherwise be accounted for.” Census 2000 Report at x (AR at C00132).

26. This two-part description of statistical sampling applies to the imputation methodology used in the 2000 census no less than it does to the sampling plan at issue in *House of Representatives*. Both procedures are sampling methods in that they both involve efforts to (1) obtain information pertaining to an observed portion of the population, and (2) use that information to draw inferences about an unobserved portion of the population. *See* Rubin Decl. ¶¶ 11, 21, 23; Wolfson Decl. ¶¶ 45–46.

27. There are two minor differences—both of which relate to the first of the two steps described above—between the sampling at issue in *House of Representatives* and the statistical imputation methodology employed in the 2000 census. *See* Wolfson Decl. ¶¶ 47–48. First, the latter would have invoked statistical sampling on a smaller scale than the former. *See id.* ¶ 48. The plan challenged in *House of Representatives* would have authorized the Bureau to count 90% of the housing units in each census tract by traditional methods of enumeration, and then use a statistical model to estimate the remaining 10%. *See id.* ¶ 50; *see also House of Representatives*, 525 U.S. at 324. The statistical imputation methodology employed in the 2000 census, by comparison, was used to estimate a much smaller percentage of the housing units that were not counted by traditional enumeration methods. Only about 0.43% of the total apportionment count was included as a result of statistical imputation; the vast majority of the apportionment count was produced by data compiled by traditional methods of enumeration. *See* Wolfson Decl. ¶¶ 49–51 (citing AR at C01027).



28. The second difference between the statistical imputation methodology used in the 2000 census and the statistical sampling at issue in *House of Representatives* is that they employ different sample selection mechanisms. See Rubin Decl. ¶¶ 20, 22; Wolfson Decl. ¶¶ 51–54. The imputation methodology used in the 2000 Census is a form of “non-probability” or “quota” sampling, while the sampling methodology struck down in *House of Representatives* was a form of “probability” or “random” sampling. See Rubin Decl. ¶¶ 20, 22; Wolfson Decl. ¶¶ 52–55; see also AR at C01167 (defining “probability sampling” as “used in statistical, demographic, and population survey applications” as “a method of sampling such that each unit of the population has a known, non-zero probability, or chance, of selection.”).

29. The housing units that would have been estimated under the sampling technique at issue in *House of Representatives* were part of “a randomly selected sample of nonresponding housing units, which would be ‘statistically representative of all housing units in [a] nonresponding tract.’” *House of Representatives*, 525 U.S. at 324. The Bureau proposed to estimate—based on data gathered from the housing units within the visited tract—the occupancy of the housing units that it did not visit. See *id.* at 324–25. This type of sampling methodology is referred to as random or probability sampling. See Rubin Decl. ¶ 20; see also AR at C00167-68 (defining probability sampling).

30. The Census Bureau apparently believes that the statistical imputation methodology employed in the 2000 census enables the Bureau to estimate the size of non-enumerated housing units. It does so, however, on the basis of a non-random and non-

representative sample.<sup>7</sup> See Wolfson Decl. ¶¶ 52–55. That methodology is known as the nearest neighbor “hot deck” imputation method (“hot deck method”). See Wolfson Decl. ¶ 53; DOJ Disc. Resp. at 17–18.

31. The Census Bureau used the hot deck method to estimate the occupancy of each imputed housing unit by using data from the nearest enumerated unit within the same census tract. See Wolfson Decl. ¶ 53; DOJ Disc. Resp. at 17–18. Thus, the Census Bureau assumed that the unenumerated residence had the same number of occupants as its geographically closest enumerated neighbor within the same tract. See Wolfson Decl. ¶ 53; DOJ Disc. Resp. at 17–18. The hot-deck method used in the 2000 census is a form of non-random, non-representative sampling. See Wolfson Decl. ¶¶ 51–57.

32. Therefore, the differences between the Bureau’s imputation methodology and the sampling procedures at issue in *House of Representatives* relate to the manner in which data is collected from the observed component of the population. This difference does not suggest that hot-deck imputation can be considered to be anything other than a form of statistical sampling. See Wolfson Decl. ¶¶ 55–56.

33. If anything, hot-deck imputation relies on a statistical assumption that is even more questionable than the statistical sampling procedure at issue in *House of Representatives*. See Rubin Decl. ¶¶ 23–25; Wolfson Decl. ¶¶ 55–56. Both forms of sampling rely on an assumption that non-enumerated housing units are “similar” to the enumerated units that are used as the sample for the hot-deck imputation. See Wolfson Decl. ¶¶ 47–53. Under the sampling

---

<sup>7</sup> A random sampling procedure is one in which each unit of the population has a known, non-zero probability of selection. A representative sampling procedure is one in which the sampled

methodology at issue in *House of Representatives*, this assumption was arguably defensible because the sample housing units were randomly distributed among all housing units that did not respond to the mailed questionnaire. *See id.*

34. Under hot-deck imputation, however, this assumption is less reliable because the sample (or “donor”) housing units are not random or representative—they are demonstrably different from those being estimated. *See Wolfson Decl.* ¶ 57–61. By definition, imputed housing units are those whose occupancy and/or population count has not been established after two or more attempts to do so by census enumerators. From a statistical standpoint, the characteristics of such housing units (including their occupancy and existence) are likely to differ from those of households whose occupants were counted through traditional enumeration methods. *See id.* Indeed, one would expect that imputed housing units are more likely to be vacant, non-existent, or to have smaller population counts than housing units with resolved housing status. *See id.*

35. Thus, the imputation method employed in the 2000 census represents an even greater statistical leap of faith than the sampling methodology struck down in *House of Representatives*, and is even further removed from traditional enumeration methods. *See Rubin Decl.* ¶ 25 (concluding that “population estimates produced using the Census Bureau’s imputation procedure rest on less reliable statistical assumptions than those produced using

---

units possess characteristics that resemble those of the non-sampled units. *See Wolfson Decl.* ¶ 48 n.8; *see also Rubin Decl.* ¶¶ 18-19.

probability sampling, including the probability samples at issue in the *House of Representatives* case”).<sup>8</sup>

36. By applying the nearest-neighbor hot-deck imputation procedure to units not known to exist (i.e., not known for certain to be a valid residential housing unit), this over-estimation error is compounded; in 2000, over 35% of all persons imputed into the population count were from units with “unknown occupied/vacant/delete status.” *See* DOJ Disc. Resp. at Table 3. This amounted to over 415,000 persons. *See id.*

37. For all of these reasons, there is no reason to believe that the use of statistical imputation improves the accuracy of the census. Although imputation increases the total population count, and thus makes the “net undercount” appear to be smaller, there is no reason to believe that the estimates added to the apportionment count by imputation accurately reflect the true population as distributed across the 50 states.

38. Defendants compiled an Administrative Record pertaining to their decision to use imputation in the 2000 census. Although Defendants ultimately decided to continue using imputation—and even expand its use—the Administrative Record contains no studies or analyses demonstrating that the imputation methodology used in the 2000 census is capable of accurately identifying real people in appropriate proportions. Similarly, the Administrative Record contains no studies or analyses demonstrating that the expanded use of imputation would

---

<sup>8</sup> There is one additional difference between the statistical sampling technique at issue in *House of Representatives* and the imputation techniques at issue here. The former was designed, at least in part, to address the historical undercount of certain “identifiable groups – including certain minorities, children, and renters.” 525 U.S. at 322-23. Here, by contrast, there is no indication in the Administrative Record produced in this case that imputation was used as a means of remedying this *differential* undercount, as opposed to improving the overall numerical

further the census' constitutional goal of distributive accuracy. *See* Wolfson Decl. ¶ 63. Nor, indeed, does the Administrative Record contain any analysis of how the policy, statutory, and constitutional considerations addressed in the *House of Representatives* case might impact the Bureau's use of imputation in the 2000 census.

Imputation as a Potential Means of Manipulating the Apportionment Count

39. Defendants' use of imputation in the 2000 census altered the apportionment that would have resulted from a traditional actual enumeration—by shifting one seat in the House of Representatives from Utah to North Carolina. If Defendants retain the discretion to decide whether (and to what extent) to utilize imputation, they will possess enormous discretionary control over the allocation of representatives in Congress. Without question, such a result would provide opportunities for manipulation. *See* Wolfson Decl. ¶ 66.

40. The Census Bureau and the Secretary of Commerce may affect the extent of the use of statistical imputation in at least four ways. First, they can influence the extent to which imputation is used in the apportionment count by prescribing the procedures for adding housing units to, and removing them from, the Master Address File. By making it relatively easy to add a housing unit to the Master Address File, but relatively difficult to remove a non-existent unit, Defendants can intentionally increase the number of imputed households and thereby affect apportionment. *See* Wolfson Decl. ¶ 67.

41. Second, Defendants can vary the extent of their reliance on imputation by adjusting the date at which they cease enumeration activities under Non-Response Follow Up and invoke the process of statistical imputation, or, similarly, by adjusting the extent of their

---

accuracy of the census. Nor are Plaintiffs aware of any evidence that imputation actually has any

efforts during the Non-Response Follow Up phase. By ending Non-Response Follow Up at an earlier date or by decreasing the resources devoted to that program, Defendants can increase the number of imputed households and thereby affect apportionment. *See* Wolfson Decl. ¶ 68.

42. Third, Defendants' use of imputation gives substantial discretion to local governmental officials, who may have a self-interested motive to increase local population counts. Local officials interested in increasing the number of persons imputed within their jurisdiction could easily do so by providing misleading and difficult-to-verify information to the Census Bureau in connection with the local update of the Master Address File. Because a predictable number of these units might never be resolved—and might consequently be classified as “unknown occupied/vacant/delete” (*i.e.*, of uncertain existence)—local officials could add imputed persons to local population counts. *See* Wolfson Decl. ¶ 69.

43. Fourth, Defendants could alter the manner in which imputation is performed. Over the last decade, advances have been made in developing methodologies for imputation; and Defendants have been involved in those developments. Therefore, it is entirely possible that in future censuses, Defendants could use a different imputation algorithm (rather than hot-deck, *e.g.*, a model-based imputation, or a “neighborhood average population count”). By using different imputation methods, Defendants could further increase or decrease the number of persons being added to the apportionment count. *See* Wolfson Decl. ¶ 70.

---

significant impact on that differential undercount. *See* Wolfson Decl. ¶ 64.

Effect of Imputation on Apportionment

44. Imputation was the only form of statistical sampling (either random or non-random) used in the portion of the 2000 census used to apportion congressional representation. *See* Wolfson Decl. ¶ 71.

45. The number of people added to the total resident population count through statistical imputation in the 2000 Census was large enough to affect congressional apportionment. *See* Wolfson Decl. ¶ 72. Specifically, the Bureau's use of imputation in the 2000 census caused one seat to shift from Utah to North Carolina. *See id.*

46. If the Census Bureau had used only the *known* population counts (meaning those persons actually enumerated during the Census, and not those estimated through statistical imputation), Utah would have been entitled to 4 seats beginning in 2003, North Carolina would have been entitled to 12 seats, and all other states would have been entitled to the number of seats allocated following the 2000 census. *See* Wolfson Decl. ¶¶ 72, 76.

47. The same apportionment would have resulted if the Census Bureau had not used imputation to include housing units of unknown existence, *i.e.*, those designated by the Bureau as "unknown occupied/vacant/delete." *See* Wolfson Decl. ¶¶ 73, 77. Stated differently, if, in conducting the 2000 census, the Bureau had limited its use of imputation to estimate only the population counts for those housing units whose existence it had confirmed, Utah would have been entitled to four seats beginning in 2003, North Carolina would have been entitled to twelve, and every other state would have been entitled to the same number of seats allocated following the 2000 census. *See id.*

## **ARGUMENT**

Summary judgment is appropriate in this case because the discovery responses and affidavits “show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.” Fed.R.Civ.P. 56(c). Under the undisputed facts, Plaintiffs are entitled to judgment as a matter of law on their claims that Defendants’ use of statistical imputation is a violation of the Census Act (*see* Section I below), the Census Clause of the Constitution (Section II), and the Administrative Procedure Act (“APA”) (Section III).

As a result of Defendants’ unlawful use of statistical imputation, Plaintiffs have suffered a significant injury in the form of the dilution of their representation in Congress and in the Electoral College for the next decade. To redress this injury, this Court should enter summary judgment in Plaintiffs’ favor and order Defendants to remove from the 2000 apportionment count all estimates derived from statistical imputation and to recalculate the apportionment of seats in the House of Representatives.<sup>9</sup>

### **I. IMPUTATION VIOLATES THE CENSUS ACT.**

Especially in light of the *House of Representatives* decision, there can be no serious question that the Bureau’s use of statistical imputation violates the Census Act. As the Court made clear in that case, the Act prohibits the use of any statistical sampling for the purpose of determining apportionment in the House of Representatives. Because the statistical imputation methods used by the Bureau are unquestionably forms of statistical sampling, they are prohibited by the statute.

---

<sup>9</sup>As noted above, this relief will affect only the parties before the Court as it will provide Utah its fourth representative in the House of Representatives, limit North Carolina to its current allotment of twelve representatives, and have no effect on any other state’s representation.



**A. The Census Act, as Interpreted in *House of Representatives*, Prohibits the Use of Statistical Sampling in the Apportionment Count.**

In *House of Representatives*, plaintiffs prospectively challenged the Census Bureau's proposed use of "statistical sampling to supplement data obtained through traditional census methods" in the 2000 census. *House of Representatives*, 525 U.S. at 324. The Bureau's plan included three steps. First, the Bureau proposed to "send census forms to all households, as well as make forms available in post offices and in other public places." *Id.* The Bureau anticipated "that 67 percent of households [would] return the forms." *Id.* Second, the Bureau planned "to divide the population into census tracts of approximately 4,000 people that [would] have 'homogeneous population characteristics, economic status, and living conditions'":

The Bureau would then visit a randomly selected sample of nonresponding housing units, which would be "statistically representative of all housing units in [a] nonresponding tract." The rate of nonresponse follow-up in a tract would vary with the mail response rate to ensure that the Bureau obtain[ed] census data from at least 90 percent of the housing units in each census tract. For instance, if a census tract had 1,000 housing units and 800 units responded by mail, the Bureau would survey 100 out of the 200 nonresponding units to obtain information about 90 percent of the housing units. However, if only 400 of the 1,000 housing units responded by mail, the Bureau would visit 500 of the 600 nonresponding units to achieve the same result.

*Id.* Third, "[t]he information gathered from the nonresponding housing units surveyed by the Bureau would then be used to estimate the size and characteristics of the nonresponding housing units that the Bureau did not visit." *Id.* at 324–25. "Thus, continuing with the first example, the Bureau would use information about the 100 nonresponding units it visits to estimate the characteristics of the remaining 100 nonresponding units on which the Bureau has no information." *Id.* at 325.

In no uncertain terms, the Supreme Court struck down this procedure. The Court held that "the proposed use of statistical sampling to determine population for purposes of

apportioning congressional seats among the States violates the [Census] Act.”<sup>10</sup> *Id.* at 334. In so doing, the Court noted that “[f]rom the very first census . . . Congress has prohibited the use of statistical sampling in calculating the population for purposes of apportionment,” and that the current Census Act “maintains [this] prohibition.” *Id.* at 335, 339.

Although the Census Bureau abandoned the precise sampling methodology expressly struck down in *House of Representatives*, it did not eliminate statistical sampling from the 2000 apportionment count entirely. The Bureau continued to use the form of statistical sampling known as imputation to estimate a portion of the population for purposes of the apportionment count.

**B. Statistical Imputation Is a Form of Statistical Sampling Prohibited by the Census Act.**

The statistical imputation methodology employed in the 2000 census is a form of statistical sampling that violates the Census Act as construed in *House of Representatives*. *See* Statement of Undisputed Facts (“SUF”) ¶¶ 21–35. Through its use of statistical imputation, the Bureau sought to estimate by means of a sample or statistical model persons who were not actually counted by traditional methods of enumeration. *See* SUF ¶ 21. By including in the apportionment count persons who were merely estimated on the basis of a statistical model, the Census Bureau contravened the requirements of the Census Act, as conclusively interpreted by the Supreme Court in 1999. *See House of Representatives*, 525 U.S. at 338 & 343.

---

<sup>10</sup> Because it found that statistical sampling was prohibited by the Census Act, the majority found it “unnecessary to reach the constitutional question presented.” *See House of Representatives*, 525 U.S. at 343. In a concurring opinion joined by three other justices, however, Justice Scalia opined that statistical estimation was also likely inconsistent with the constitutional requirement of an “actual enumeration.” *See id.* at 344–56 (Scalia, J., concurring). *See* Section II below.

The Census Bureau has expressly recognized the straightforward distinction between “traditional methods of physical enumeration” and methods of “statistical sampling” that are designed “to account for those who cannot otherwise be accounted for.” Census 2000 Report at x (AR at C00132); *see* SUF ¶¶ 22–24. In its report to Congress on its plan for the 2000 census, the Bureau acknowledged that traditional methods of “actual enumeration” have long been viewed as “the foundation of the census.” Census 2000 Report at x (AR at C00132). This traditional foundation includes the “questionnaire mail-out and mail-back campaign” and follow-up visits to households that do not respond to the questionnaire by mail. *Id.*

The Census 2000 Report also reveals the Bureau’s understanding that any attempt to estimate persons not actually enumerated by these traditional methods constitutes statistical “sampling.” *Id.* at 23 (AR at C00155). Specifically, the Report acknowledges that “‘sampling’ occurs whenever the information on a portion of a population is used to infer information on the population as a whole.” *Id.* There can be no doubt that the express, undisputed purpose of imputation is to “infer information on the population as a whole” from data gathered on a “portion of a population.” *Id.*

In the Census 2000 Report, the Bureau expressly concedes that imputation is a form of statistical sampling in this sense. According to the Report, “Census 2000 [would] not be the first time that the Census Bureau has used statistical methods to correct for problems in physical enumeration and to provide a more accurate final result.” Census 2000 Report at 23 (AR at C00155); *see* SUF ¶ 23. According to the Bureau, the method of “statistical imputation” had been employed in a few previous censuses when enumerators “could not obtain information on the number of people living in [a housing] unit” by traditional methods of actual enumeration.

*Id.* Thus, as the Bureau itself acknowledges, imputation is a “statistical method” or form of “sampling” designed “to correct for problems in physical enumeration.”<sup>11</sup> The Census Bureau’s use of imputation in the 2000 census accordingly violates the Census Act as interpreted in *House of Representatives*. See SUF ¶¶ 22–24.

Indeed, the imputation methodology employed in the 2000 census is substantively indistinguishable from the sampling proposal expressly struck down in *House of Representatives*. See SUF ¶¶ 21–35. Both methodologies effectively estimate the size of households (and the number of households) not counted by traditional methods of actual enumeration, and accordingly both are equally offensive to the statutory scheme. Three differences between the two methodologies may be identified, but none of them calls into question the controlling conclusion that imputation is a form of statistical sampling prohibited by statute.

**1. Imputation cannot be justified on the basis of its narrower scope.**

The principal difference between the sampling struck down in *House of Representatives* and the statistical imputation used in the 2000 census is that estimates using imputation involved a smaller percentage of the population. See SUF ¶ 27. In the Census 2000 Report, the Census Bureau proposed to count 90% of the households in each census tract by traditional methods of enumeration, and to use a statistical model to estimate the remaining 10%. See *House of*

---

<sup>11</sup> Throughout the Census 2000 Report, the Bureau repeatedly describes imputation as a form of statistical estimation or sampling. See SUF ¶¶ 22–24. In the heat of this litigation, the Census Bureau undoubtedly will seek to distance itself from these statements, and argue that imputation somehow does not qualify as statistical sampling. Any such efforts must be rejected; having repeatedly described imputation as a form of statistical sampling in response to an inquiry from Congress, the Bureau cannot credibly re-define that term now for purposes of this litigation. See *FLRA v. United States Dep’t of Treasury*, 884 F.2d 1446, 1455 (D.C. Cir. 1989) (explaining that “a position established only in litigation may have been developed hastily, or under special pressure,” and may not represent the results of the agency’s deliberative processes).

*Representatives*, 525 U.S. at 324–25. By contrast, the Census Bureau used imputation to estimate a much smaller percentage (less than one-half of 1%) of the households that it was unable to enumerate using traditional methods.<sup>12</sup> See SUF ¶ 27.

This difference in the extent of the Census Bureau’s use of statistical sampling is irrelevant as a matter of law under the Supreme Court’s analysis in *House of Representatives*. In that case, Justice Breyer argued in dissent that, although the Census Act would not permit the use of sampling as a “substitute” for traditional enumeration methods, it would allow sampling as a “supplement” to such methods. See *House of Representatives*, 525 U.S. at 350–51. In rejecting Justice Breyer’s argument, the Court firmly established that the unlawfulness of sampling cannot depend on the extent of its implementation. Specifically, the Court explained that the Census Act prohibits the use of statistical sampling “‘for the *determination* of population for purposes of apportionment,’” *id.* at 342 (quoting § 195) (emphasis added), and that “determination” is “‘the act of deciding definitely and firmly,’” *id.* (quoting Webster’s Ninth New Collegiate Dictionary 346 (1983)). Because the relevant population “is not ‘determined,’ not decided definitely and firmly, until the [estimates generated by statistical sampling methods] are complete,” the Court in *House of Representatives* expressly held that the prohibition on sampling “for the determination of population” applies whenever any statistical estimates are included in the apportionment count. *Id.*

Accordingly, under *House of Representatives*, the Census Act’s prohibition of statistical sampling applies whether sampling is used to estimate 10% of households (as proposed in the

---

<sup>12</sup> In light of the *House of Representatives* decision, the Bureau stepped up its efforts to visit households that did not respond to the mailed questionnaire, and thus counted over 99% of all households by traditional methods of enumeration. See *id.*

Census 2000 Report), or to estimate less than 1% of households (as the Bureau actually did in the 2000 census). The Census Act leaves no room for statistical estimation of *any* households for apportionment purposes.

**2. Non-random sampling is just as unlawful as random sampling.**

The second difference between the method of statistical estimation invalidated in *House of Representatives* and the statistical imputation methodology used in the 2000 census is that they employ different sampling techniques. See SUF ¶ 28. As Professor Donald B. Rubin, Chairman of the Department of Statistics at Harvard University, explains in his accompanying Declaration, the principal difference between the two methodologies is that while the imputation methodology employed in the 2000 census is a form of “non-probability” or “quota” sampling, the sampling struck down in *House of Representatives* was a form of “probability” or “random” sampling. Declaration of Donald B. Rubin, Ph.D. (“Rubin Decl.”) ¶¶ 17–23; see SUF ¶ 27–33.

Under the “probability” or “random” sampling model invalidated in *House of Representatives*, the Bureau proposed to estimate the size of the 10% of the households within each census tract that would not be enumerated by traditional methods of enumeration. See *House of Representatives*, 525 U.S. at 324. It planned to do so based on data gathered from “a randomly selected sample of nonresponding housing units, which would be ‘statistically representative of all housing units in [a] nonresponding tract.’” *Id.* In this sense, the method struck down by the Supreme Court would have used random, representative sampling to estimate the size of households that were not actually counted. See SUF ¶¶ 27–33. Because these estimates of unenumerated households were to be used to “infer information on the population as a whole,” *id.* ¶ 23, this proposal was a form of sampling prohibited by the Census Act.

The statistical imputation methodology actually employed in the 2000 census also estimated the size of non-enumerated households, but it did so based on a non-random, non-representative sample. *See* SUF ¶¶ 28–30. Under the method of statistical imputation, the Bureau estimated the size of the 0.43% of the households that were not enumerated by traditional methods of enumeration. It did so based on data gathered from the household within the same tract that was geographically closest to the one being estimated. *See id.* ¶ 31. In this sense, statistical imputation used non-random, non-representative sampling to estimate the size of households that were not actually counted.<sup>13</sup> *See id.* ¶¶ 28–31. Again, because these estimates of unenumerated households were used to “infer information on the population as a whole,” *id.* ¶ 23, statistical imputation is a form of sampling prohibited by the Census Act.

The fact that statistical imputation employed a non-random, non-representative sample can hardly be thought to justify it. If anything, the non-random sampling that bears the “imputation” label represents an even greater statistical leap of faith than the random sampling methodology at issue in *House of Representatives*, and thus is even further removed from traditional enumeration methods.<sup>14</sup> *See* SUF ¶¶ 33–37. To illustrate, the methodology at issue in *House of Representatives* included plans to estimate 10% of all housing units nationwide (consisting entirely of units not counted by traditional methods of enumeration) by making assumptions based on “information gathered from the nonresponding housing units surveyed by

---

<sup>13</sup> A random sampling procedure is one in which each unit of the population has a known, non-zero probability of selection. A representative sampling procedure is one in which the sampled units possess characteristics that resemble those of the non-sampled units. *See* SUF ¶ 30 n.7.

<sup>14</sup> The important point, however, is not that imputation is statistically unreliable; Plaintiffs need not establish this point to prevail. Rather, Plaintiffs’ claim turns only on the undisputed proposition that statistical imputation is a form of statistical sampling, and not a method of

the Bureau” within the same census tract. *House of Representatives*, 525 U.S. at 325. Thus, the units surveyed under that plan were “a randomly selected sample of nonresponding housing units, which would be ‘statistically representative of all housing units in [a] nonresponding tract,’” *id.* at 324, and could therefore be used to infer information about the non-surveyed housing units in the same tract. *See* SUF ¶¶ 33–37. From a statistical standpoint, that assumption was defensible because the sampled housing units were randomly distributed among all non-enumerated households, and were therefore presumably representative of the non-sampled units. *See* SUF ¶ 33.

The hot-deck imputation methodology used in the 2000 census, by comparison, was based on a non-random and non-representative sampling technique. It was non-random because it assumed that imputed housing units – which were not enumerated by traditional methods – were likely to have the same number of occupants as “donor” units whose occupants were actually enumerated by traditional methods. Similarly, it was non-representative because enumerated households are statistically more likely to be occupied than their non-enumerated counterparts. *See* SUF ¶¶ 30–37. By definition, imputed housing units are those whose occupancy and/or population count has not been established after two or more attempts to do so by census enumerators. From a statistical standpoint, the characteristics of such housing units (including their occupancy and existence) are likely to differ from those of households whose occupants were counted through traditional enumeration methods. *See id.* Indeed, one would expect that imputed housing units are more likely to be vacant, non-existent, or to have smaller population counts than housing units with resolved housing status. *See id.*

---

actual enumeration. This point is not only undisputed; it is conclusively established by the



Thus, the Census Act's prohibition of statistical sampling cannot be construed to condone the non-random, non-representative sampling methodology actually employed by the Census Bureau if it condemns the random, representative sampling methodology struck down in *House of Representatives*). Such a construction would render the Census Act a nullity, or at least an absurdity. If the Census Act permitted non-random sampling estimates for unenumerated households, then the Census Bureau could accomplish precisely what the Supreme Court has held that it may not lawfully do: it could supplement its actual enumeration of the population with estimates generated by statistical sampling models—so long as it employed a methodology that is closer to the non-random sampling methodology employed in the 2000 census than it is to the random methodology at issue in *House of Representatives*. Surely the Census Act's prohibition on sampling cannot be so easily circumvented.

Nothing in the language of the Act suggests the possibility of fine distinctions between “random” and “non-random” sampling, or between “representative” and “non-representative” sampling. The statute enacts an unambiguous prohibition on “sampling.” Moreover, such a distinction would foster endless litigation over the precise boundary between permitted and forbidden methods or sampling, thus injecting the federal courts into the impossible task of “reviewing estimation techniques in the future” to determine whether they are non-representative or representative techniques. *See House of Representatives*, 525 U.S. at 348–49 (Scalia, J., concurring) (noting that a legal standard that would permit some “estimation techniques” and forbid others would give rise to “the new specialty of ‘Census Law’” and would strain the ability of the federal courts “to conduct such review effectively”). By the same token, such a distinction

---

Census Bureau's own admissions.

would give the party controlling the census the untenable power “to distort representation in its own favor” by “select[ing] among various estimation techniques.”<sup>15</sup> *Id.* This Court should avoid this troubling distinction and interpret the Census Act in accordance with its plain language to forbid any and all methods of statistical sampling.

**3. The Census Bureau cannot avoid the statutory prohibition by pointing to four prior uses of imputation in the apportionment count.**

In a previous submission to this Court, Defendants attempted to identify a third basis for distinguishing imputation from the sampling struck down in *House of Representatives*: that imputation can lay claim to the imprimatur of historical practice. Specifically, Defendants sought to characterize imputation as “a practice that has been used consistently by the Census Bureau since 1940,” and thus as a practice that should be upheld even though the sampling proposed in the Census 2000 Report was held unlawful. Defendants’ Opposition to Motion for Scheduling Order at 6. The Census Bureau’s reliance on history, however, must be rejected as factually misleading and legally irrelevant.

First, to the extent past practice is relevant, the Bureau’s own practice throughout its history has largely rejected the use of imputation in favor of traditional methods of actual enumeration. From the first census of 1790 through the census of 1950, the apportionment count was derived exclusively from actual data gathered by census enumerators, and not from estimates generated by statistical methods. *See* SUF ¶ 15. Contrary to Defendants’ unsupported assertion that imputation has been employed since 1940, it is now undisputed that the only “imputation” employed in the 1940 and 1950 censuses was imputation designed to estimate

---

<sup>15</sup> For further discussion on this problem, see section II below.

*characteristics* of the population (such as age, race, and gender), and not to estimate the actual population *count* for apportionment purposes. *See id.* This earlier practice has no relevance here, as it is well settled that the statutory prohibition on sampling applies only to the apportionment count and not to other uses of the census. *See House of Representatives*, 525 U.S. at 338 (acknowledging that the Census Bureau may “use sampling procedures and special surveys” in “collecting a range of demographic information during the decennial census”).

To be sure, the Census Bureau has used statistical imputation to supplement the actual enumeration of the apportionment population in the last few censuses. *See* SUF ¶ 16. Such use of imputation, however, has rarely had any actual impact on apportionment. *See id.* ¶ 20.

Moreover, the imputation methodology employed in the 2000 census is significantly different from its predecessors. In compiling the apportionment counts in the 1960, 1970, 1980, and 1990 censuses, the Bureau imputed persons that it estimated to be living in housing units that the Bureau had found to exist, but for which no population count was reported. *See* SUF ¶ 17 & n.4. In other words, in these censuses, statistical imputation was used only with respect to households listed on the Master Address File that Census Bureau enumerators had visited and identified during the Non-Response Follow Up phase of the census. *See id.* If a housing unit visited and identified during this phase could not be enumerated—because enumerators were never able to secure census data from persons living in the household or from a “proxy” such as a neighbor—the statistical imputation methodology was employed to estimate the number of persons in that unit. *See id.* On the other hand, if enumerators were unable to verify that a housing unit listed on the Master Address File was a valid household that actually existed, then that housing unit was treated as non-existent and it was not subject to imputation. *See id.*

This fundamental change easily distinguishes the imputation methodology used in the 2000 census from the methodology employed in earlier censuses. In 2000, the Census Bureau not only used sampling to estimate persons of uncertain existence living in *known* households or dwelling units; it also used sampling to estimate additional persons of uncertain existence living in households or dwelling units that may not even exist! Because it is undisputed that the number of persons imputed to such “phantom” households was alone sufficient to deprive Utah of its fourth member of the House of Representatives, *see* SUF ¶ 47, this recent innovation is clearly enough to distinguish the imputation used in 2000 from its predecessors.

Second, in any event, Defendants’ reliance on historical practice is simply misguided as a matter of law. The Census Bureau cannot opt out of its legal duty to conduct an actual enumeration of the population by a sort of “adverse possession” of statistical methods such as imputation. *See Walz v. Tax Comm’n*, 397 U.S. 664, 678 (1970) (explaining that “[i]t is obviously correct that no one acquires a vested or protected right in violation of the Constitution by long use”). If the Census Act requires an actual enumeration and eschews the use of statistical sampling, as the Supreme Court held in *House of Representatives*, no past practice of disregarding that statutory command will alter its binding effect.

Indeed, the Supreme Court in *House of Representatives* expressly rejected any reliance on past practice as a justification for the use of statistical sampling. There, the Census Bureau, in an attempt to justify its proposed use of sampling (as outlined in the Census 2000 Report), argued that it had previously “used statistical methods [specifically, imputation] to correct for problems in physical enumeration and to provide a more accurate final result.” *House of Representatives*, (Sup. Ct. No. 98-404) Brief for the Appellants at 48 (1998 WL 691297).

Justice Breyer similarly argued in dissent that the Census Bureau had in several recent censuses “used an estimation process called ‘imputation’ to fill in gaps in its headcount.” *House of Representatives*, 525 U.S. at 352 (Breyer, J., dissenting).

The decision in *House of Representatives* necessarily (if implicitly) rejected this reliance on recent practice. Despite the Bureau’s recent practice of using “statistical methods” in the form of imputation, the Court unambiguously held that the Census Act eschews such methods in favor of traditional methods of actual enumeration.

To be sure, Justice O’Connor’s opinion for the Court examined history to provide “context” for the Court’s interpretation of an ambiguity on the face of the Census Act. *See House of Representatives*, 525 U.S. at 339. But the relevant historical context cited in *House of Representatives* was not the past practice of the Census Bureau; it was the historical treatment of statistical methods, by *Congress*, in the governing statutory framework. *See id.* at 339–40.<sup>16</sup>

---

<sup>16</sup> Specifically, the Court considered the history of the Census Act in an effort to reconcile two important provisions of the Act. The first is Section 195, which provides that “[e]xcept for the determination of population for purposes of apportionment . . . , the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as ‘sampling.’” 13 U.S.C. § 195. The second provision is Section 141(a), which authorizes the Secretary to “take a decennial census of population . . . in such form and content as he may determine, including the use of sampling procedures and special surveys.” 13 U.S.C. § 141(a). The ambiguity that called for a reference to the history of the Act was whether the “broad grant of authority given in § 141(a)” is limited by “the narrower and more specific § 195.” 525 U.S. at 338. The Court held that it is so limited, after it “look[ed] to the remainder of the law to determine what portions of the decennial census the authorization [in § 141(a)] covers.” *Id.*

Accordingly, the Court’s historical analysis focused not on whether the Census Bureau had ever used statistical sampling in the apportionment count, but instead on whether the history of the Census Act itself supported a reading of section 141(a) that would allow the Bureau to override the express command of Section 195. Because the Court found that Congress had long eschewed statistical methods in the apportionment count, it rejected this broader reading of § 141.

That history—i.e., the history of Congress’s treatment of statistical sampling—draws no distinction between the random sampling struck down in *House of Representatives* and the non-random sampling implemented in the 2000 census.

In short, as the majority in *House of Representatives* noted, for over 200 years, “federal statutes have prohibited the use of statistical sampling where apportionment is concerned,” without ever suggesting that certain forms of sampling might be immune from this restriction. *House of Representatives*, 525 U.S. at 341. The fact that the Census Bureau has ignored this longstanding prohibition in the past few censuses is simply beside the point, since the relevant history of the Census Act admits of only “one plausible reading” of § 195: that it unambiguously “prohibits the use of sampling” of all stripes in the apportionment count. *House of Representatives*, 525 U.S. at 340.

## II. STATISTICAL IMPUTATION VIOLATES THE CENSUS CLAUSE.

The majority opinion in *House of Representatives* declined to address the question whether sampling violates the Census Clause because it concluded that the issue was controlled by statute. At least four justices concluded, however, that the Census Clause also appears to condemn statistical estimation techniques by requiring an actual “enumeration.” *See House of Representatives*, 525 U.S. at 346 (Scalia, J., concurring, joined by Rehnquist, C.J., Kennedy, J.,

---

The point of the historical inquiry, then, was not to discern whether the Census Bureau had ever attempted to arrogate to itself the power to implement statistical methods of estimation in the apportionment count, but only to determine whether *Congress* had ever authorized such methods for that purpose. Because the relevant history indicated that for “over 200 years . . . federal statutes have prohibited the use of statistical sampling where apportionment is concerned,” the Court held that “there is only one plausible reading of the amended § 195: It prohibits the use of sampling in calculating the population for purposes of apportionment.” *Id.* at 339-40.

and Thomas, J.). Further analysis demonstrates that this conclusion is compelled, not only by the plain language of the Census Clause, but also by various historical considerations that were not before the Court in *House of Representatives*. That analysis also demonstrates that statistical imputation is similarly unconstitutional because, like the statistical sampling techniques at issue in *House of Representatives*, it also relies upon estimation rather than “actual enumeration.”

**A. An “Actual Enumeration” is an Actual Count, Not an Estimate.**

As the *House of Representatives* concurrence pointed out, an actual enumeration implies a count based on traditional methods of enumeration, not on statistical estimation. During the founding era, “enumeration” was understood to contemplate an actual counting, not an estimate:

Dictionaries roughly contemporaneous with the ratification of the Constitution demonstrate that an “enumeration” requires an actual counting, and not just an estimation of number. Noah Webster’s 1828 American Dictionary of the English Language defines “enumerate” as “[t]o count or tell, number by number; to reckon or mention a number of things, each separately”; and defines “enumeration” as “[t]he act of counting or telling a number, by naming each particular,” and “[a]n account of a number of things, in which mention is made of every particular article.” Samuel Johnson’s 1773 Dictionary of the English Language 658 (4<sup>th</sup> ed.) defines “enumerate” as “To reckon up singly; to count over distinctly; to number”; and “enumeration” as “The act of numbering or counting over; number told out.” Thomas Sheridan’s 1796 Complete Dictionary of the English Language (6<sup>th</sup> ed.) defines “enumerate” as “to reckon up singly; to count over distinctly”; and “enumeration” as “the act of numbering or counting over.” The notion of counting “singly,” “separately,” “number by number,” “distinctly,” which runs through these definitions is incompatible ... with gross statistical estimates.

*House of Representatives*, 525 U.S. at 346–47 (Scalia, J., concurring). Moreover, as if to remove the possibility of any ambiguity, the Census Clause prescribes an *actual* enumeration—an enumeration, in other words, “really in act,” not just “purely in speculation.” See Samuel Johnson, *A Dictionary of the English Language* (4<sup>th</sup> ed. 1773).

It is difficult to imagine a phrase that more clearly would have expressed the preference for an actual count over a mere estimate. Even the terminology sometimes adopted in this

Memorandum—*i.e.*, a “physical headcount”—does not quite capture the distinction, inasmuch as traditional methods of enumeration have always included gathering data from heads of households on individuals not physically present, but known to reside in the household. *See House of Representatives*, 525 U.S. at 335–36. Thus, the requirement of an “actual enumeration” uniquely identifies the relevant difference between a statistical estimate and an actual count.

Indeed, it is quite telling that the Census Bureau itself has used the word “enumeration” the same way. In a 1909 Census Bureau publication discussing the history of censuses in colonial America, the Census Bureau repeatedly drew a distinction between population assessments rendered “upon the basis of enumerations” and those based on mere “estimates.” *See* U.S. Bureau of the Census, *A Century of Population Growth: From the First Census of the United States to the Twelfth, 1790–1900*, 9 (1909); *see also id.* at 4 (distinguishing population assessments that were “partly estimated” from those that were the result of enumeration); *id.* at 5 (noting that population information recorded in colonial Connecticut was “furnished more often from estimates than from enumerations”); *id.* at 6 (distinguishing colonial “estimates” of population in New York, Vermont, New Jersey, Pennsylvania, Delaware, and Maryland from “censuses” of population based on a “thorough enumeration”). Similarly, when historians have addressed this issue, they have drawn the distinction between an “enumerative” census (which is based on an actual count of the population) and an “estimate” of the population (which is based on statistical inferences drawn from a “partial enumeration” of a portion of the population). *See* A.B. Wolfe, “Population Censuses Before 1790”, 27 *J. of Amer. Statistical Ass’n* No. 180, at 357; *id.* at 364 (explaining that the “population figure[s] reported to the government” in Italy in



the eighteenth century and earlier were “based not on actual enumeration but on estimates, or a mixture of the two”).

Statistical imputation cannot be reconciled with the requirement of an “actual enumeration.” The very purpose of imputation is to estimate statistically the size of households that were *not* counted “singly,” “separately,” “number by number,” or “distinctly.” Indeed, under the imputation methodology employed in the 2000 census, the Census Bureau not only failed to count “separately” the individual “persons” that it imputed; it took a further step away from such actual enumeration by failing even to count “separately” the *households* to which such persons were imputed. SUF ¶ 17 & n.4.<sup>17</sup> Thus, it is not at all surprising that the Census Bureau itself has acknowledged that imputation involves statistical estimation and is not one of the “traditional census methods of physical enumeration.” Census 2000 Report at x & 23.

**B. The History of the Census Clause Confirms the Plain Language.**

The history of the Census Clause confirms this understanding of the plain language. From the outset of the debates on this Clause, the Framers’ overriding concern was to provide a “permanent and precise standard” for the census. *See* 1 Farrand 578. They understood that any standard that preserved discretion in the hands of the political officers controlling the census would encourage an unseemly manipulation—as “those who have power in their hands will not give it up while they can retain it,” but “will always when they can rather increase it.” *Id.*; *see also Franklin v. Massachusetts*, 505 U.S. 788, 791 (1992) (explaining that the requirement that a

---

<sup>17</sup> It is also undisputed that the number of persons imputed in households not known even to exist was alone sufficient to deprive Utah of its fourth member of the House of Representatives. *See* SUF ¶ 47. Thus, if imputation as to such “phantom” households is deemed to fall short of the constitutional requirement of an “actual enumeration,” that finding alone would entitle Plaintiffs to judgment as a matter of law.

new census be conducted every ten years was designed “to ensure that entrenched interests in Congress did not thwart or stall needed reapportionment”).

This overriding policy consideration initially arose in the context of the debate over whether to reapportion members of Congress on the basis of an assessment of the States’ wealth, as opposed to (or in addition to) their population. *See* 1 Farrand at 582. Although an early proposal would have permitted reapportionment “according to the principles of wealth & population,” the wealth criterion was soon abandoned, primarily on the ground that any assessment of wealth would have introduced too much discretion:

Mr. Sherman thought the number of people alone the best rule for measuring wealth as well as representation; and that if the Legislature were to be governed by wealth, they would be obliged to estimate it by numbers. He . . . had been convinced by the observations of (Mr. Randolph & Mr. Mason) that the *periods* & the *rule* of revising the Representation ought to be fixt by the Constitution.

*Id.* (emphasis in original). William Paterson similarly objected to a standard calling for an “estimate for the future according to the Combined rule of numbers and wealth as too vague.”

*Id.* at 561. George Mason echoed these same concerns, noting that any assessment of the wealth of the States would “require[] of the Legislature something too indefinite & impracticable.” *Id.*; *see also id.* at 583 (James Wilson indicating that he “considered wealth as an impracticable rule”).

The history of the Framers’ expressed preference for an “actual Enumeration” of population over an “estimate” of wealth strongly supports the plain language interpretation set forth above in at least two respects: (1) it indicates the Framers’ repudiation of a reapportionment rule that would depend on “indefinite” determinations that create opportunities for manipulation by those who control the census; and (2) it demonstrates that the Framers

understood (and even expressly discussed) the difference between an “estimate” and an “actual Enumeration.”

**1. The Framers preferred a precise rule over an indefinite standard.**

The Framers’ preference for a “precise” standard over an “indefinite” rule for apportionment strongly supports the conclusion that an “actual Enumeration” is an actual count and not a statistical estimate. If Defendants retain the discretion to decide whether to implement the form of statistical sampling known as imputation, and further to determine the methodology and extent of such imputation, they possess the very power that the Framers meant to withhold under the Census Clause: to manipulate the census in an attempt to further their own political interests.

Most obviously, the discretion to decide whether to supplement the actual enumeration with estimates derived from statistical imputation may provide an opportunity for a very direct manipulation of the apportionment of representatives. In the 2000 census, the Census Bureau and the Secretary of Commerce fundamentally altered the apportionment that would have resulted from a traditional actual enumeration—by shifting one seat in the House from Utah to North Carolina. If Defendants retain the discretion to decide whether to utilize such an imputation adjustment, they possess enormous discretionary control over the allocation of representatives in Congress. *See* SUF ¶ 39.

Similarly, the discretion to determine the *extent* of the use of statistical imputation in the apportionment count presents a further opportunity for manipulation. The Census Bureau and the Secretary of Commerce can (and do) affect the extent of statistical imputations by prescribing procedures for adding households to and removing them from the Master Address File; by

altering the date on which they cut off actual enumeration and begin the process of statistical imputation; by determining the extent of the Non-Response Follow Up; and by deciding on the statistical methods and assumptions used in statistical imputation. *See id.* ¶¶ 40–43.<sup>18</sup>

The impact of such decisions is not merely hypothetical. In 1990, for example, the Census Bureau’s approach to imputation added only about 50,000 persons to the apportionment count, *see* SUF ¶ 17 n.4, while a different approach in 2000 added nearly 1.2 million persons to the apportionment count at issue here, *id.* The discretion to control the process of imputation is the power to control apportionment.

Such discretion is surely offensive to the fundamental design of the Census Clause:

To give Congress the power, under the guise of regulating the “Manner” by which the census is taken, to select among various estimation techniques having credible (or even incredible) “expert” support is to give the party controlling Congress [or the Department of Commerce] the power to distort representation its own favor. In other words, genuine enumeration may not be the most accurate way of determining population, but it may be the most accurate way of determining population with minimal possibility of partisan manipulation.

*House of Representatives*, 525 U.S. at 348–49 (Scalia, J., concurring).

For all of the reasons noted above, an interpretation of the Census Clause that would permit statistical imputation must be rejected as contrary to the express design of the Framers. A construction of the Constitution that permitted statistical imputation would inevitably invite its manipulation in an effort to “distort representation” in favor of the party that controls the census.

---

<sup>18</sup> By the same token, the use of imputation also accords substantial discretion to local governmental officials, who may increase the number of persons imputed within their jurisdiction by providing misleading and difficult-to-verify information to the Census Bureau in connection with the local update of the Master Address File. *See* SUF ¶ 42.

This is the very result that the Framers sought to avoid in the “precise” standards set forth in the Census Clause.

**2. The Framers understood and discussed the difference between an “estimate” and a physical count of the actual “number” of persons in a population.**

The plain-language interpretation of the Census Clause finds further support in the Framers’ recognition of the difference between an estimate of population and a physical count.

There can be no doubt that the Framers’ generation was aware of this difference.<sup>19</sup> When the

---

<sup>19</sup> In this country, Thomas Jefferson and others had derived estimates of the populations of various states prior to the ratification of the Constitution. See H. Alterman, *Counting People: The Census in History 168-70* (1969). Jefferson did so “based upon limited data and specific demographic assumptions” and made an estimate that “is thought to have been accurate by a margin of one-to-two percent.” *House of Representatives*, 525 U.S. at 348 (Scalia, J., concurring) (citing Alterman).

Methods of estimation did not originate with Jefferson, however. In 1662, John Graunt—sometimes referred to as the father of statistical sampling—published the first population estimate of London based on statistical analysis. See Philip Kraeger, “New Light on Graunt,” *Population Studies, Journal of Demography*, Vol. 42, No. 1 (Mar. 1988), at 132-34 (explaining that Graunt’s “estimate” of the “total population of London” involved “a great many guesses,” but was based on “a series of observations” and “rules for calculating probabilities of long life, and the distribution of deaths”). More than a century later, “[i]n 1753, Thomas Potter introduced a bill in Parliament providing for a general enumeration.” A.B. Wolfe, *Journal of the American Statistical Association*, Vol. 27 (Dec. 1932), at 368. At about this same time, a Frenchman by the name of LaPlace proposed a method of estimating the population in France by “carefully enumerating at a given time, the inhabitants of several communities” and then by extrapolating the actual enumeration of these communities to “the entire country.” Stephen M. Stigler, *The History of Statistics—The Measurement of Uncertainty before 1990* (1986), at 163-64. This approach initially was lauded for “its potential for great saving of time and effort at little or no cost in accuracy,” *id.* at 164, but within a few years it was rejected on the ground that “there is only one way of attaining exact knowledge of the population and the elements of which it is composed, and that is an *actual* and complete census, the formation of a register of the names of all inhabitants, together with their ages and professions,” *id.* at 165.

Thus, the distinction between an “estimate” and an “actual enumeration” was well known in England and elsewhere in Europe for more than a century before the ratification of the Constitution. The Constitution expressly requires the latter, and thus can only be construed to eschew estimates and to require an actual count.

first Continental Congress debated the possibility of using population to apportion representation in 1774, John Adams lamented the lack of actual population counts, warning that “it will not do . . . to take each other’s word” on the matter—that population counts “ought to be ascertained by authentic evidence.” 2 *Diary and Autobiography of John Adams* 123–24 (L.H. Butterfield ed., 1961). This deficiency had not been cured by the time of the Constitutional Convention in 1787. The Documentary History of the Ratification of the Constitution 298 (Merrill Jensen ed., 1976). “The records of the Constitutional Convention contain a few scattered and partial *estimates of population*,” but there was no actual count based on “authentic evidence.” *Id.* (emphasis added).

In fact, the initial allocation of representatives in the Census Clause<sup>20</sup> was based on “estimates” of the population of the several States, not on actual counts. *See id.* (noting that in early 1788 Charles Cotesworth Pinckney published the “estimates” that “he said the Convention had used” in making the initial apportionment of representatives); *see also* U.S. Bureau of the Census, *Historical Statistics of the United States, 1789–1945*, 16 (1949) (explaining that estimates of the population of the colonies were “based on materials ranging from relatively complete enumeration . . . to fragmentary data”).

Moreover, the debates at the Constitutional Convention include express reference to the possibility of an “estimate” of population, and a clear understanding of the difference between such an estimate and a count of actual numbers. As Nathaniel Gorham recounted in “support[ing] the propriety of establishing numbers as the rule” for reapportionment, “in Massts. estimates had been taken in the different towns” in an attempt to ascertain the population of those

---

<sup>20</sup> See Art. I, § 2, Cl. 3 (allocating specific numbers of representatives to the several states “until [the] enumeration” to be conducted “within three Years after the first Meeting of the Congress of the United States”).

towns. 1 Farrand at 587. Gorham and his colleagues clearly understood the difference between an “estimate” and an actual count of the population. As he explained, “persons had been curious enough to compare these estimates with the respective numbers of people,” and in so doing had concluded that a measure of population was also an accurate indicator of wealth. *Id.* (concluding that “the most exact proportion prevailed between numbers and property”).

The Framers, then, surely understood the concept of an “estimate” of population, yet they expressly rejected such an approach in requiring an “actual Enumeration.” Indeed, delegates to the Constitutional Convention expressly adverted to (and rejected) the possibility of a reapportionment based on an “estimate.” *See id.* at 561, 582, 583. An early version of the Census Clause would have called for reapportionment based on a “census and estimate,” *id.* at 564, but the Framers replaced that language with the requirement of an “actual Enumeration.” Similarly, as noted above, the Framers rejected wealth as the standard for reapportionment—on the ground that Congress “would be obliged to *estimate it* by numbers” and that such an estimate would be inconsistent with the preference for a “rule of revising the Representation [that] ought to be fixt [sic] by the Constitution.” *Id.* at 582. Thus, although there apparently was no recorded debate explicitly addressing the meaning of the words “actual Enumeration” when they were added to the Constitution by the Committee of Style, *see* 2 Farrand at 590, there can be little doubt that the Framers understood that this plain language was intended to require an actual count rather than an estimation of any kind.

This conclusion finds further confirmation in later statements by delegates to the Constitutional Convention. For example, when the first Census Bill came up for debate in Congress, James Madison confirmed his understanding that the constitutional requirement of an

“enumeration” was meant to prescribe the method of conducting the census. Madison discussed this term in the context of his proposal that the first census be expanded beyond “the bare enumeration of the inhabitants” and that it also gather data concerning “the several classes into which the community was divided” so that “the legislature might proceed to make a proper provision for the agricultural, commercial and manufacturing interests . . . in due proportion.” James Madison, Census Bill, House of Representatives 25–26 Jan., 2 Feb. 1790, *Papers* 13:8–9, 15–16 (quoted in 2 Philip B. Kurland & Ralph Lerner, *The Founders’ Constitution* (1987) at 139). Madison’s proposal elicited widespread opposition, primarily on the ground that this broader use of the census would be unduly complicated and practically difficult. *See id.* In responding to this objection, Madison argued that the “enumeration” required by the constitution would itself be even more complex and difficult:

If the object to be attained by this particular *enumeration* be as important in the judgment of this house, as it appears to my mind, they will not suffer a small defect in the plan, to defeat the whole. And I am very sensible, Mr. Speaker, that there will be more difficulty attendant on the taking the census, *in the way required by the constitution*, and *which we are obliged to perform*, than there will be in the additional trouble of making all the distinctions contemplated in the bill. The classes of most troublesome to *enumerate*, in this schedule, are happily those resident in large towns, the greatest number of artisans live in populous cities, and compact settlements, where distinctions are made with great ease.

*Id.* (emphasis added). Thus, Madison understood that the constitutional requirement of an “enumeration” was intended to prescribe “the way” that the census should be taken. Although this actual enumeration would be “difficult,” Madison nonetheless acknowledged that Congress was “obliged to perform” the census in this manner.

With the benefit of this historical context, the constitutional provision for an “actual Enumeration” can only be understood to require an actual count of the population, not a



subjective estimate. This conclusion finds further support in the fact that despite the long-recognized difficulty of an actual enumeration and the obvious availability of statistical estimation, Congress has long resisted the temptation to authorize the use of statistical methods to estimate the apportionment population. *See House of Representatives*, 525 U.S. at 336 (noting that for most of the history of the census Congress “require[ed] enumerators to ‘visit personally each dwelling house in his subdivision’ in order to obtain ‘every item of information and all particulars required for any census’”). Congress’s forbearance strongly suggests that it believed “that the power [to estimate the population by statistical methods] was thought not to exist.” *See Printz v. United States*, 521 U.S. 898, 905 (1997) (explaining that historical evidence that “earlier Congresses avoided use of [the] highly attractive power [to compel state executive officers to administer federal programs]” indicates “reason to believe that the power was thought not to exist”); *see also House of Representatives*, 525 U.S. at 348 (Scalia, J., dissenting) (arguing that “[t]he stronger the case . . . for the irrationality of that course [of actual enumeration unaided by statistical estimation methods], the more likely it seems that the early Congresses . . . thought that estimations were not permissible”).

For all of these reasons, Plaintiffs are entitled to judgment as a matter of law on their claim that statistical imputation used in the apportionment count of the 2000 census violates the Census Clause. At a minimum, the Court should hold that any interpretation of the Census Act that would countenance the use of statistical imputation would present serious constitutional doubts, and accordingly should interpret the Census Act to prohibit the use of imputation in the apportionment count. *See Edward J. DeBartolo Corp. v. Florida Gulf Coast Building & Constr.*

*Trades Council*, 485 U.S. 568, 575 (1988) (explaining that federal courts should construe statutory text in such a way as to avoid serious constitutional doubts).

### III. DEFENDANTS' USE OF STATISTICAL IMPUTATION VIOLATES THE APA.

Defendants' use of statistical imputation also violates the demands of the APA. The APA's most basic requirements are that an agency's actions must be supported by substantial facts and analysis set forth in the administrative record and that the agency's actions must bear a rational relationship to the agency's goal. *See, e.g., Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *Hoyle v. Babbitt*, 129 F.3d 1377, 1383 (10th Cir. 1997); *Olenhouse v. Commodity Credit Corp.*, 42 F.3d 1560, 1574–75 (10th Cir. 1994). In this case, the Bureau's goal is prescribed by statute and the Constitution itself. As the Supreme Court has repeatedly emphasized, the central goal of the census is to conduct a "distributively accurate" apportionment count – that is, one that furthers equal political representation in Congress because it not only accurately identifies the size of the national population, but also accurately ascertains how that population is apportioned among the several states. *See Wisconsin v. City of New York*, 517 U.S. 1, 19–20 (1996); *Franklin v. Massachusetts*, 505 U.S. 788, 804 (1992).

Defendants' actions fail to satisfy these basic standards. Defendants have produced the administrative record on which the Bureau based its decision to use imputation in the 2000 census. *See* DOJ Disc. Resp. at 6–8. Defendants have also produced records of the Bureau's consideration of whether to use imputation in the 1960, 1970, 1980, and 1990 censuses. *See id.* A review of those documents demonstrates that the Bureau has never gathered the necessary facts to assure that imputation furthers the constitutional goal of equal representation. In

particular, the administrative record does not contain facts or analysis showing that the procedures used in the 2000 census (including the imputation of “phantom” housing units not known to exist) were likely to produce a distributively accurate portrait of the American population.

Nor does the administrative record contain any indication that the Bureau has ever examined whether imputation is consistent with the Census Act (as interpreted by the Supreme Court in 1999) or the Census Clause. This disregard for Congress’ instructions and the Supreme Court’s pronouncements is remarkable. As discussed above, *House of Representatives* overruled Defendants’ proposed use of sampling in the Census 2000 Report in holding that Congress has prohibited the use of statistical sampling in the apportionment count. *See House of Representatives*, 525 U.S. at 338 & 343. And four of the Justices expressed the opinion that the Census Clause itself prohibits the inclusion of sampling in the apportionment count, and that it calls into question statistical methods that present the possibility of partisan manipulation. *See id.* at 348. At a minimum, the Court’s decision in *House of Representatives* put Defendants on notice that any statistical method that went beyond the actual enumeration of known persons was highly questionable and required special justification.

Despite the fact that the Court in *House of Representatives* rejected Defendants’ arguments and at least called into question the statutory and constitutional legitimacy of imputation, Defendants never analyzed whether the continued use of imputation is consistent with their statutory and constitutional mandate.<sup>21</sup> Indeed, instead of analyzing these issues,

---

<sup>21</sup> This is not the only evidence of Defendants’ cavalier disregard for Congress’ instructions. To facilitate both congressional and judicial oversight of Defendants’ compliance with the statutory mandate to exclude statistical sampling from the apportionment count, Congress directed the

Defendants actually expanded their use of imputation – using it to estimate hundreds of thousands of phantom persons in phantom households not known even to exist. Accordingly, because the Bureau failed to gather the facts necessary to support its actions, and because it failed to set out a reasoned analysis of how imputation would further distributive accuracy, the Bureau’s decision to supplement the apportionment could by means of imputation must be vacated.

### CONCLUSION

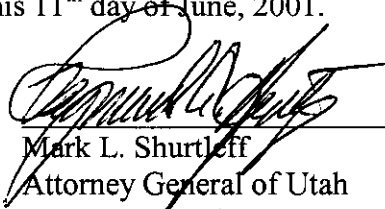
For the foregoing reasons, there are no genuine issues of material fact and Plaintiffs are entitled to judgment as a matter of law. The Court should enter an Order (a) declaring that the Census Bureau’s decision to supplement the actual enumeration of the 2000 apportionment population with statistical sampling estimates under the imputation methodology violates Article I, Section 2, Clause 3 of the United States Constitution; Section 2 of the Fourteenth Amendment; the Census Act; Title II, Section 209; and the Administrative Procedure Act; and (b) enjoining and requiring Defendants to remove from the 2000 apportionment count all data derived from statistical sampling estimates under the imputation methodology, to recalculate a new apportionment of seats in the House of Representatives, and to submit that apportionment

---

Bureau to publish—at specified times and for all geographic levels—“the number of persons enumerated without using statistical methods.” Pub. L. No. 105-119, 1997 H.R. 2267, 111 Stat 2440, 2483. The records produced by Defendants demonstrate that the Bureau failed to comply with Congress’ instruction because it failed to publish data separating the number of persons actually “enumerated without using statistical methods” from the number of persons estimated under the “statistical method” of imputation. Moreover, the Bureau’s December 2000 report to Congress on the conduct of the census makes no mention of the Bureau’s continued use of imputation—further underscoring Defendants’ failure to rationally analyze whether is it proper to supplement the apportionment count with imputed persons following the Court’s decision in *House of Representatives*. See U.S. Bureau of the Census, Census 2000 Operational Plan (Dec. 2000) (AR at C00193-342).

calculation to the President for subsequent transmittal to the clerk of the House and, from him, to the States.

RESPECTFULLY SUBMITTED this 11<sup>th</sup> day of June, 2001.



---

Mark L. Shurtleff  
Attorney General of Utah  
Raymond A. Hintze  
Chief Civil Deputy Attorney General  
J. Mark Ward  
Assistant Attorney General

Thomas R. Lee  
1395 E. Canberra Dr.  
Lindon, UT 84042  
801-378-9024

Gene C. Schaerr  
Michael S. Lee  
Jay T. Jorgensen  
SIDLEY AUSTIN BROWN & WOOD  
1722 Eye St., NW  
Washington, DC 20006  
202-736-8000

**CERTIFICATE OF SERVICE**

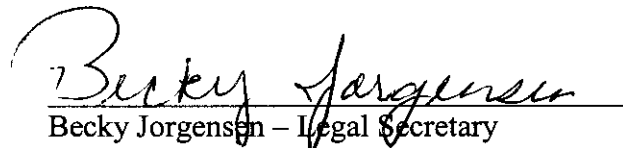
I, Becky Jorgensen, hereby certify that a true and correct copy of the foregoing document was served on June 11, 2001 via electronic mail, hand delivery and/or overnight delivery on each of the persons listed below:

Hon. Paul M. Warner  
U.S. Attorney's Office, District of Utah  
185 South State Street #400  
Salt Lake City, UT 84111

Stuart E. Schiffer  
Sandra M. Schraibman  
Amy M. Allen  
United States Department of Justice  
PO Box 883  
901 E Street, NW  
Washington, D.C. 20044

Edwin M. Speas, Jr.  
Tiare B. Smiley  
James Peeler Smith  
State of North Carolina  
114 W. Edenton St.  
PO Box 629  
Raleigh, North Carolina 26702

Jathan W. Janove  
Janove Baar Associates, L.C.  
9 Exchange Place Suite 900  
Salt Lake City, UT 84111

  
Becky Jorgensen – Legal Secretary

Exhibits/  
Attachments  
to this document  
have **not** been  
scanned.

Please see the  
case file.

# EXHIBIT “A”